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AUTHOR	Roberts, A. Wayne, Ed.
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ABSTRACT

This book discusses the calculus reform effort. The first essay captures the basic themes that should characterize a calculus course that is modern in its vision as well as its pedagogy and content. The next section contains essays on the vision of calculus reform: "Visions of Calculus" (Sharon Cutler Ross); "Nonalgebraic Approaches to Calculus" (Thomas Tucker); "Towards Active Processes for Teaching and Learning" (Mia Gehrke and David Pengelley); "Technology in Mathematics Instruction" (John Kenelly); "Constructing a New Calculus Course" (Deborah Hughes Hallett); and "Thinking about Learning, Learning about Thinking" (David Smith). The next section's essays discuss planning: "Planning and Change: Experience Reports" (Martin Flashman); "Planning and Change: The Michigan Calculus Project" (Morton Brown); "Planning and Change: Some Things Need Time," and "Checklist for Planning Change in a Calculus Program." In the third section, assessment is discussed, and a collection of calculus final exams is presented. The final section explores the effect of calculus reform on precalculus and advanced courses, as well as the relationship reform has to all of the allied disciplines that use calculus: "Weaving a Program of Secondary School Mathematics" (John Dossey); "New Directions for the Introductory Differential Equations Course" (Robert Borrelli and Courtney Coleman); "Changing Calculus: Its Impact on the Post-Calculus Curriculum" (David Carlson and Wayne Roberts); and "A Round-Table Discussion with the Client Disciplines" (Sheldon Gordon). The book includes a list of resources including Internet resources. (MKR)

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